L 23426-66

ACC NR: AT6012597 2

diagram of the control unit and memory, and a diagram of the data output from the ETsV-2 to the memory are presented. At present (1965), the system automatically records, prints, and punches lapse-rate measurements taken by ADGT-62 automatic, remote-control, lapse-rate recorders installed on the high meteorological tower. A 24-point EPP-09 self-balancing potentiometer is used as the recording device. The system can run continuously for 48 hr. The measurement frequency is 0.05 cps. There are 20 input parameters, 5 of them temperature, the remainder—lapse rates. The operation of the system is described in some detail. The error introduced by the system was determined by checking temperature gradient measurements obtained by processing diagram (instrument) tapes against the print-out tapes, and it is stated that for a total of 1000 cases, 420 coincided, 400 showed a discrepancy of 0.01C, and 34 a discrepancy of 0.03C, which is within the tolerance for processing diagram tapes. Orig. art. has: 4 figures and 1 table. [EO]

SUB CODE: 04/ SUBM DATE: none/ ATD PRESS: 4233

Card 2/2

L 44426-66 EWT(1) GW

ACC NR: AP6024387 SOURCE CODE: UR/0050/66/000/007/0054/0057

AUTHOR: Ivanov, V. N.; Mazurin, N. F.

ORG: Institute for Applied Geophysics (Institut prikladnoy geofiziki)

TITLE: Simple automatic punching systems

SOURCE: Meteorologiya i gidrologiya, no. 7, 1966, 54-57

TOPIC TAGS: data processing equipment, punched card, punched paper tape

ABSTRACT: Two simple meteorological data processing systems have been developed at the Institute for Applied Geophysics. The first system, employing punched cards, is designed to store temperature and temperature-gradient data received from high-altitude meteorological towers and fed automatically into the system in the form of continuously alternating voltage within the 0—10 mv range. The signals are amplified before entering the analog-to-digital converter. The system has a storage capacity of 20 parameters, 5 temperature parameters and 15 temperature gradients. The accuracy of the system is well within the permissible error limits for processing

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ACC NR: AP6024387

mechanically recorded measurements. The second system, employing a punched tape, is presently used for processing the mean wind velocity data obtained at 12 levels of high-altitude meteorological towers and at 3 levels of standard meteorological towers. The input voltage signals are fed to the systems in the ranges: 0—1, 0—10, 0—1000, and 0—10000 v. Recording speed of the system is 3 ciphers per second. The system's control unit has 65 transistors and 40 diodes. An experimental prototype showed good results du ng operation. Block diagrams of both systems and technical descriptic n of sys em components are presented in the original article, including a sample of the punched tape. Both systems can be used for the automatic processing of signals recorded on tapes of standard recording instruments. Orig. art. has: 4 figures. [KP]

SUB CODE: 09/ SUBM DATE: 14Jun65/

Card 2/2

42823

S/169/62/000/010/036/071
D228/D307

3.5110

AUTHORS: Kurbatova, A.V., Kozlovskaya, O.V. and Mazurin, N.I.

TITLE: Some spatial characteristics of upper layer clouds over the north-western territory of the USSR

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 10, 1962, 16-17, abstract 10B97 (Tr. Leningr. gidrometeorol. in-ta, no. 12, 1961, 145-162)

TEXT: Using the data of aircraft observations of cirri over the Leningrad region, those of atmospheric radio sounding by Stn. Voyeykovo, and tropopause charts for 1955-1960, the authors analyze 561 cases of observation of upper layer clouds that were carried out in order to determine their wind and heat characteristics, vertical spread, and probability of appearance. The data obtained indicate that there is a seasonal trend in the frequency of different vertical cloud spreads. The most probability falls on the gradation 1-2 km in spring, 2-4 km in summer, 1-3 km in autumn and 2-3 km in winter. The average vertical spread of clouds in each season

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Some spatial characteristics ...

increases with increasing cloud pointage. Thus, with up to 5 points of cloud the vertical spread constitutes 1000 m, and at 8-10 points it grows by 2- to 3-fold. The vertical cloud spread depends on the tropopause type: the most spread is noted when there is an inversion distribution of the temperature in the tropopause layer; the least spread is noted if there is a retarded fall of the temperature with altitude, when the cloud thickness is proportional to that of the tropopause. The frequency of 10-point cloud decreases on the transition from an inversion tropopause to one with a retarded temperature drop, but the frequency of appearance of 1-7 point cloud increases in this case. The frequency of the appearance of any gradations in the amount of cloud when the tropopause has this latter form is almost identical, while the inversion and isothermal tropopauses it grows as the amount of cloud increases. As a result of analyzing the observational data it was established that the maximum wind level is usually disposed either in the upper part of the cloud layer or a little higher. In most cases north-westerly, westerly, and south-westerly maximum wind directions were observed in all seasons of the year when cirri were present. The greatest cloud thickness

Some spatial characteristics ...

is observed when the winds have prevalent directions both for the year on an average and seasonally, there being more vertically thick clouds if the winds are from the western part of the horison. The maximum wind speed at the time of cirrus is much higher in autumn and winter than in spring and summer. The greatest vertical upper layer cloud spread is observed in winter and spring months, when the maximum wind speeds are from 60-100 km/hr, and in summer and autumn periods if the speeds are more than 140 km/hr. Positive wind speed gradients of 0-10 km/hr/km prevail when cirri are present in all seasons of the year; their frequency, however, is higher in spring and summer than in autumn and winter. At maximum wind speeds of more than 100 km/hr the upper boundary of cirri is often disposed above the minimum temperature level.
[Abstracter's note: Complete translation]

Card 3/3

S/169/62/000/009/089/120
D228/D307

3.5110

AUTHORS: German, M. A., Mazurin, N. I. and Solonin, S. V.

TITLE: Question of flight conditions in cirri

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 9, 1962, 70, abstract 9B426 (Tr. Leningr. gidrometeorol. in-ta, no. 12, 1961, 163-167)

TEXT: Ananylsis of the data of exploratory flights by TY-104 (TU-104) aircraft in July - August 1958 and August - September 1960 over the USSR's European part, East Siberia, and the Far East -- and also of routine flights on the air routes Leningrad-Moscow, Leningrad-Kiyv, and Leningrad-Sverdlovsk -- showed that, when the middle or lower layer is cloudy, cirri have a greater vertical extent than if clouds are absent. When the middle or lower layer is cloudy, the average vertical extent of cirri comprises 2700 m on a warm, 2300 m on a cold, and 2600 m on an occluded front; if there are no lower or middle clouds, it comprises 2500, 1200, and 2100 m respectively. The mean vertical extent of frontal cirri depends on

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D228/D307

Question of flight ...

the latitude. On a warm front it increases from 1600 m at 40 - 50°N to 3300 m at 51 - 55°N and then decreases to 1800 m at 61 - 65°N. On a cold front in the same latitudes the average vertical extent of cirri comprises 1400, 2200, and 1400 m respectively. The average bump frequency in clouds amounts to 72%. In different forms of cirri, including those of jet streams, the overloads vary from 0.01 to 0.60 g in the warm season. The maximum overload frequency falls on the gradation 0.01 - 0.10 g. Overloads of from 0.2 to 0.6 g are recorded in the cirri of jet streams. In cirro-strati bumping is most intensive at the upper and lower boundaries. The bump layer's average thickness in the upper layer's clouds comprises 200 - 600 m, the maximum being 1500 m. The mean values of turbulence factors in different forms of cirri are given, as is the relation between the characteristic scale of turbulent movements and the difference of the humid-adiabatic and vertical temperature gradients; it testifies to the fact that the dimension of the elements of turbulence grows as the instability of atmospheric stratification increases. 4 references. [Abstracter's note: Complete translation.]

Card 2/2

41168

S/169/62/000/009/083/120
D228/D307

AUTHOR: Mazurin, N. I.

TITLE: Synoptic evolutional conditions for cirro-strati and supercirrus formations

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 9, 1962, 40, abstract 9B235 (In collection: Issled. oblakov, osadkov i grozovogo elektrichestva, M., AN SSSR, 1961, 199-203)

TEXT: Analysis of aerial synoptic data and aircraft observations shows that Cs are formed on the warm peripheries of baric formations, and also on the anticyclonic periphery of jet streams, and arise in consequence of the advection of warm moist air in the upper troposphere and as a result of ascending movements below the tropopause. Cs are disposed over the whole Ns-As system of a warm front and not just in its forward part. The clouds' spatial position is mainly determined by the distribution of large-scale vertical movements, which depends on the nature of the wind speed's

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Synoptic evolutional conditions ...

vergence at different heights, since a change in the sign of vertical movements occurs as the sign if the vergence alters. The level of maximum horizontal divergence is the boundary of ascending and descending movements. When the frontal surface extends throughout the troposphere, horizontal convergence is noted in the lower stratosphere several kilometers above the tropopause; the formation of supercirrus clouds (of the stratospheric haze layer) takes place above this convergence layer. Analysis of 21 cases of observation shows that supercirrus formations arise on the deepening of cyclones and on the intensification of jet streams, when intense moisture exchange between the troposphere and the stratosphere is guaranteed. The average vertical extent of supercirrus formations amounts to about 1000 m. In jet streams Cs settle at the anticyclonic periphery as separate fields, 350-400 km long. Using 300- or 200-mb surface maps, it is possible to judge qualitatively the cloudiness distribution in the region of jet streams: The vertical velocity's increase with height and the formation (preservation) of Cs are observed on the advection of an anticyclonic eddy; their disintegration, however, is observed on the advection of a cyclonic

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eddy. A graph of the dependence of the vertical extent of Cs on the tropopause's height and temperature is given, as is a diagram of the spatial position of Cs in an asymmetric cyclone. 2 references.
[Abstracter's note: Complete translation.]

Card 3/3

MAZURIN, N.I.

Some properties of fields with a solid cloud [illegible] and [illegible] of precipitation over the Northern Hemisphere. Trudy [illegible] (MIRA 17:4) no.161:36-41 '64.

MAZURIN, O. V.

Mazurin, O. V. -- "Sutdy of the Heat Conductivity of Common Silicate Glasses." Cand Chem Sci, Leningrad Technological Inst, Leningrad 1953. (Referativnyy Zhurnal--Khimiya, No 1, Jan 54)

So: SUM 168, 22 July 1954

MAZURIN, O. V.

The temperature function of the electrical conductance of some glasses. O. V. Mazurin. *Trudy Leningrad. Tekhnol. Inst. im. Lensoveta* 1954, No. 29, 72-89.—The glass compns. investigated are (in mole %): (1) 18 Na_2O, 6 CaO, 76 SiO_2; (2) 18 Na_2O, 12 CaO, 70 SiO_2; (3) 18 K_2O, 6 CaO, 76 SiO_2; (4) 9 Na_2O, 9 K_2O, 6 CaO, 76 SiO_2; (5) 9 Li_2O, 9 K_2O, 6 CaO, 76 SiO_2; (6) 4.5 Li_2O, 4.5 Na_2O, 9 K_2O, 6 CaO, 76 SiO_2. The measurements extended over the temp. range from 100° to 1300°, i.e. from the consolidated to the annealing and softening range, to the liquid melts. The usual bridge and electrometric methods were used; the electrolysis cells for the melts were constructed according to K. S. Evstrop'ev (1949) for melts of the system Na_2O–PbO–SiO_2. The diagrams show the logarithms of the specific resistance, ρ, plotted vs. $1/T.10^4$, as straight lines from 100° up to t_g which is indicated by a slight discontinuity. At higher temps. the curves have a somewhat steeper slope which, however, is changed to a slowly decreasing slope in the range of the liquid state of the glasses. The specific resistance of glasses with mixed alkalies is considerably larger than that of the glasses with only one alk. oxide. The law $\log \rho = f(1/T)$ is strictly linear at low temps., but the temp. coeff. is increased in the softening range, decreased again in the liquid state (in good agreement with the data given in literature). The results are discussed from the viewpoints of the theory of Frenkel for the viscosity and the relaxation phenomenon, and the assumptions for the significance of the t_g temp. previously discussed by P. P. Kobeko (1952). The temp. effect in the conductance signifies the structural loosening in the

Mazurin, O.V.

glass above t_g, and therefore also the decrease in the activation energy of ionic mobility. The theory is entirely in agreement with the present expti. results concerning the curve for the $\rho = f(1/T)$ above t_g, and also with the previous results of Zhdanov and Kuznetsov (*C.A.* 49, 2800c), with borosilicate glasses. Concerning the const., A in Frenkel's exponential equation, Kobeko gives for ionic crystals $\log A$ data in the limits of 0.6 and 18.65, as a consequence of the temp. coeff. of the activation energy, E. His theory postulates for $T = \infty$ a limit value of A for fused ionic compds. in the order of magnitude of 100 to 1000 $1/\Omega$ cm. A graph in which the observed conductance of 19 fused salts and glasses is plotted vs. $1/T$ shows, however, that the true limit value would be most probably between 4 and 10 $1/\Omega$ cm. (only $CuBr$ is anomalous). The expti. values for consolidated glasses continuously range between 1.4 and 2.6 for $\log A$, and are much lower than those calcd. for the crystals (with 0.6 and 18.7 as the extremes of the scattering). The calcn. of ionic activation energies from the specific conductance of glasses is, therefore, possible on the basis of Frenkel's equation.

W. Eitel

2/2

BOTVINKIN, O.K.; YEVSTROP'YEV, K.S., doktor khimicheskikh nauk, professor, retsenzent; TOROPOV, N.A., doktor tekhn.nauk, professor, retsenzent; MAZURIN, O.V., kandidat khim. nauk, retsenzent; KUKOLEV, G.V., doktor tekhnicheskikh nauk, peofessor, retsenzent; ALKIND, I.Ya., kandidat tekhnicheskikh nauk, redaktor; DEMINA, G.A., redaktor; LYUDKOVSKAYA, N.I., tekhnicheskiy redaktor.

[Physical chemistry of silicates] Fizicheskaia khimiia silikatov. Izd. 2-oe, perer. i dop. Moskva, Gos.izd-vo lit-ry po stroit. materialam, 1955. 285 p. (MLRA (9:5)

1.Kafedra obshchey tekhnologii silikatov Leningradskogo ordena Trudovogo Krasnogo Znameni Tekhnologicheskogo instituta imeni Lensoveta (for Yevstrop'yev, Toropov, Mazurin).
(Silicates)

MAZURIN, O.V.

Effects of fluorine added to glass batches on the electrical conductance. O. V. Mazurin and E. V. Molchanova. *Trudy Leningrad. Tekhnol. Inst. im. Lensoveta* 1955, No. 34, 48–52.—The most important ingredient influencing the conductance of the 19 exptl. glasses contg. F are the alkalies. The conductance was detd. in the range between 100 and 400°, i.e. in the consolidated glass. K silicate glasses with about 2% F have a distinctly increased resistance. In Na_2O-contg. glasses the effect is much less pronounced, and mixed Na-K silicate glasses show intermediate effects. A reduction of the alk. contents even reinforces the F effect. The first addns. of fluorides to the glass batch are relatively the most efficient, and with increasing amts. of F they are less distinct. F always raises the specific resistance of the consolidated glass. This effect is particularly important for the electrotech. use of the glasses besides the considerable acceleration of the batch fusion by addns. of alk. fluorides, Na_2SiF_6, etc. The losses in F during the fusion are not detd. Some of the Na silicate glasses are opalescent. W. Eitel

AUTHOR: MAZURIN,O.V., BORISOVSKIJ,E.S. PA - 2123

TITLE: The Investigation of the Neutralization Effect in connection with the Recrease of Electron Conductivity in Silicate Glasses. (Issledovaniye neytralizatsionnogo effekta umen'shyeniya elektroprovodnosti v silikatnykh styeklakh. Russian).

PERIODICAL: Zhurnal Tekhn. Fiz., 1957, Vol 27, Nr 2, pp 275 - 288, (U.S.S.R.)

Received: 3 / 1957 Reviewed: 4 / 1957

ABSTRACT: Silicate glasses with one, two, and three basic oxides were examined with respect to their electric conductivity. The attempt was made to explain theoretically the strong increase of glass resistance on the occasion of the part-substitution of basic oxides of one type for such of another type. First the experimental method is described. Much attention is paid to annealing. Graphite electrodes were used. At first glasses with two components were investigated with respect to their electric conductivity: Lithium silicate, sodium silicate-, and potassium silicate- systems. The chemical composition of these systems is shown in form of a table. Next, glasses with two- and three-basic oxides were investigated. For the latter the system $Li_2O \cdot 2SiO_2$ - $Na_2O \cdot 2SiO_2$ - $K_2O \cdot 2SiO_2$ was chosen. A table shows the synthetic compositions of all glasses. Diagrams show the curves for electric conductivity, the specific resistances of glasses, as well as the influence

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The Investigation of the Neutralization Effect in connection with the Recrease of Electron Conductivity in Silicate Glasses.

exercised on electric conductivity by the substitution of one type of one basic oxide for another. Further diagrams show the dependence of the neutralization effect on the total content of the basic oxides in the glass. The chapter on the nature of the neutralization effect at first deals with explanations given by various scientists, after which the authors suggest a scheme for the explanation of this phenomen. Essentially, this means the following: The energy necessary in order that an ion "jumps" over on to a free place (which was abandoned by an ion of a different magnitude) is considerably higher than the energy the same ion would require in order to occupy a place abandoned by another ion of the same magnitude. Here the difference in adapting oxygen ions to basic ions of different magnitude is probably of importance. Results are summed up as follows: 1) The neutralization effect in polybasic silicate glasses does not depend on the concentration of the basic oxide. In potassium-lithium glasses this effect is more marked than in sodium-lithium or potassium-sodium glasses. 2) In the case of a decrease of electric conductivity the neutralization effect is so considerable that the resistance of the optimum glass-compositions with 33% R_2O sur-

The Investigation of the Neutralization Effect in connection with the Recrease of Electron Conductivity in Silicate Glasses.

passes the resistance of a number of modern electrovacuum glasses. 3) In the case of a decrease of electric conductivity the neutralization effect can be explained only by taking the interaction between basic ions of different magnitude into account. (14 illustrations)

ASSOCIATION: Technological Institute Lensovets, Leningrad
PRESENTED BY:
SUBMITTED: 22.6.1956
AVAILABLE: Library of Congress.

Card 3/3

MAZURIN, O. V.

AUTHORS: Mazurin, O. V., Pavlova, G. A., Lev, Ye. Ya., Leko, Ye. K. 57-12-3/19

TITLE: An Investigation of Silicate Glasses with Electronic Conductivity (Silikatnyye stekla s elektronnoy provodimost'yu)

PERIODICAL: Zhurnal Tekhnicheskoy Fiziki, 1957, Vol. 27, Nr 12, pp. 2702 -2703 (USSR)

ABSTRACT: In the investigations of alkali-free silicate glass conducted here special regard was given to the anomalously high electric conductivity of glass with iron oxydes. The electric conductivity of such glass proved to be higher than that of analoguous glass, which contained a corresponding amount of sodium oxyde instead of iron oxyde. The measurements were conducted with graphite electrodes according to the usual method (reference 7). The character of the conductivity was determined according to the "Tuband-method". Three glass samples, anode, a medium (control) and cathode samples were carefully ground to fit together and mounted between metal disks. A constant voltage was applied to the disks. A measured amount of current was passed through

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An Investigation of Silicate Glasses with Electronic Conductivity.

the samples (at about 6000 C), which beforehand were weighed. A judgement can be given on the character of the conductivity by means of the change in weight. The results showed, that in the glass under investigation a practically pure electronic conductivity (experimental error 1 ÷ 2 %) is met with, the magnitude of which is strongly dependent on the Fe_2O_3 content and on the composition of the glass. It is shown, that although the glass sample no. 2 contained only 5 % of Fe_2O_3 it displayed a pure electron conductivity. From this it appears, that the lattice of amorphous boron-aluminium silicate represents no insurmountable obstacle for the electrons. (Glass sample number 2: 45 molar percent of SiO_2, 10 molar percent B_2O_3, 10 molar percent of Al_2O_3, 30 molar percent of CaO, 5 molar percent of Fe_2C_3). It is conjectured, that probably, a partial or total electron conductivity is also characteristic for many silicate and borate glass types free from alkaline contents with a high resistance. There are 1 figure, 2 tables, and 12 references, 7 of which are Slavic.

An Investigation of Silicate Glasses with Electronic Conductivity. 57-12-3/19

ASSOCIATION: Leningrad Institute of Technology imeni Lensovet (Leningradskiy tekhnologicheskiy inst. im. Lensoveta).

SUBMITTED: April 24, 1957.

AVAILABLE: Library of Congress

Card 3/3

5(2)

AUTHORS: Mazurin, O.V., Levin, A.S. SOV/153-58-2-23/30

TITLE: On the Problem of Selecting a Rational Measuring Method of the Electric Conductivity of Glasses (K voprosu o vybore ratsional'-noy metodiki izmereniya elektroprovodnosti stekol)

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i khimicheskaya tekhnologiya, 1958, Nr 2, pp 142 - 146 (USSR)

ABSTRACT: The method by Shchukarev and Myuller (Ref 1) for the measuring of the electric conductivity of glasses may be regarded as the most rigid method. The authors had to find out whether the measuring results in using graphite or silver electrodes agree with those where amalgam electrodes were used. The solution of this problem would determine the quality of this or that method, moreover, it would make possible the evaluation of the experimental data from publications. At present the following measuring method is used in the institute mentioned in the Association: the samples have the shape of disks with plane parallel surfaces to which round graphite electrodes are fitted. The measuring cell consists of 2 main parts: a furnace and a lid. Their construction is described in detail. As compared to earlier constructions (Refs 2,3) it shows several advantages. The measurements of resistance (below 10^6 ohm)

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are carried out by means of alternating current (frequency: 50 cycles) by a bridge for the measuring of capacitances and resistances. In the case of higher resistances direct current and a megohmmeter LM-2 are used. Both devices are bridge connections. In both cases 6E5 lamps serve as equilibrium indicators. In the investigation of the electric conductivity the method mentioned in reference 1 was considerably simplified. Figure 2 shows the construction of the amalgam electrode. A stabilized constant voltage was applied to the sample. The resistance of the sample was measured by recording the passing voltage by means of a micro-ammeter. It can be seen from table 1 that in the case of a prolonged passing of the voltage the resistance of the sample decreases to a certain extent even if the temperature of the hot junction of the thermocouple remains constant on the surface of the sample. The authors assumed that the resistance decreased due to the heating of the sample by the passing voltage. Therefore the authors interrupted the voltage for 20 minutes and then measured again the resistance. Table 1 reveals that after the interruption the resistance had increased again to the original value. A control computation has demonstrated that the above assumption made by the authors is very likely. Therefore

it can be concluded that the values of the resistance at the first moment after the switching on of the voltage can be regarded as the real resistances. Figure 3 shows measuring results of the resistance at various temperatures at the first moment after the switching on of the voltage. The dependence of the resistance on temperature proved to be linear as expected. Resistances measured with direct and alternating current proved to be the same. Figure 3 shows also measuring results when graphite electrodes were used. In contrast to the existing opinion silver electrodes cannot be regarded in any case as reversible (Fig 2). The authors arrived at the conclusion that graphite electrodes show the same results as amalgam electrodes. Since the first considerably simplify the method it is not expedient to use amalgam electrodes for the mentioned purposes. There are 3 figures, 2 tables, and 4 references, 3 of which are Soviet.

ASSOCIATION: Leningradskiy tekhnologicheskiy institut imeni Lensoveta (Leningrad Technological Institute imeni Lensovet)
Kafedra stekla (Chair of Glass)

5(4) SOV/153-58-3-23/30

AUTHOR: Mazurin, O. V

TITLE: On the Similarity of the Temperature Dependences of the Electric Conductivity and the Viscosity of Glasses (O skhodstve temperaturnykh zavisimostey elektroprovodnosti i vyazkosti stekol)

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i khimicheskaya tekhnologiya, 1958, Nr 3, pp 136 - 141 (USSR)

ABSTRACT: It should be attempted to study in the investigation of various physical and chemical properties of glass not each property separately but look for general rules, which, at first sight, are seemingly connected with completely different properties. The relation between the properties mentioned in the title is in this respect very interesting. In publications the most contradictory statements can be found (Ref 1 in contrast with 2). In the present paper an attempt is made to generalize the material to be found in literature and to draw some conclusions from it. As is known, the temperature dependence of the electric conductivity of solid glasses is expressed by a simple and theoretically well founded formula:

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On the Similarity of the Temperature Dependences of the Electric Conductivity and the Viscosity of Glasses

SOV/153-58-3-23/30

$$x = A \cdot e^{-\frac{B}{T}} \qquad (1).$$

As this formula (1) cannot be used for glass in unstable state empiric formulae (Ref 3) are used for this purpose (2a and 2b), where T denotes the absolute temperature, A and B being constants. From the comparison between the formulae (2a and (2b) on the one hand, and the expressions for the temperature dependence of the viscosity (Ref 3) on the other, the similarity of the temperature changes of the viscosity and electric conductivity of the molten glass is striking. It was also found (Refs 1, 4 and 5 - 6, independent of each other) that $x^n \cdot \eta = C$ (3), where x denotes the specific electric conductivity in unstable state, η the viscosity of the same glass, n and C constants. According to Frenkel', this dependence can also theoretically be determined (Ref 9). Although his two formulae (4) and (5) cannot directly be applied to the calculation of the viscosity and electric conductivity the formula (3) can be derived from (4) and (5) after the introduction of the magnitude

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On the Similarity of the Temperature Dependences of the Electric Conductivity and the Viscosity of Glasses

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$$n = \frac{E_\eta}{E_x} \quad (6)$$ after simple transformations. Since 1935 comprehensive experimental material has been accumulated which proves the rule mentioned above (Refs 1, 11 - 16). Figure 1 shows some of the rules in question. Table 1 shows the compositions of the glasses mentioned in figure 1 together with the n quantities. Until now the validity of the formula (3) has been found without exception for a great number of very different glasses. The author is convinced that the temperature range of the applicability of the formula (3) is very wide. The dependence (3) is not at all only formal but has profound physical reasons (Ref 12, contrary to Ref 9). Finally the author tries to make the dependence in question compatible with the concepts on the glass structure. There are 4 figures, 1 table, and 19 references, 15 of which are Soviet.

ASSOCIATION: Leningradskiy tekhnologicheskiy institut imeni Lensoveta (Leningrad Technological Institute imeni Lensovet); Kafedra

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On the Similarity of the Temperature Dependences of the Electric Conductivity and the Viscosity of Glasses

SOV/153-58-3-23/30

tekhnologii stekla (Chair of Glass Technology)

SUBMITTED: September 28, 1957

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MAZURIN O.V.

15.2130

66562

Translation from: Referativnyy Zhurnal, Khimiya, 1959, Nr 15, p 383 (USSR)

AUTHOR: Mazurin, O.V.

TITLE: On the Connection Between Electric Conductivity and Diffusion of Alkali Ions in Glasses

PERIODIC: Tr. Leningr. tekhnol. in-ta im. Lensoveta, 1958, Nr 39, pp 73 - 77

ABSTRACT: The study of the diffusion of alkali ions in glasses permits to evaluate the value of energy barriers which must be overcome by them during their motion. According to Einstein's equation, diffusion coefficients D_c were calculated, on the basis of electric conductivity, for Na-ions in glasses of the system Na_2O-CaO-SiO_2 and compared with the literature experimental data (D_e) obtained by the method of labeled atoms. In all cases $D_e < D_p$ which causes the introduction of a correction coefficient (CC) into Einstein's equation. Analogous correlations are obtained at the comparison of D_c with the diffusion coefficients calculated from experiments on the lixiviation of glass. The CC phenomenon can be connected with the fact that, in diffusion, the ion being in the interstice knocks the ion sitting in the node of the lattice from its place. As a

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66562

SOV/[illegible]-59-15-5/[illegible]

On the Connection Between Electric Conductivity and Diffusion of Alkali Ions in Glasses

result the jump of the first ion into the reverse direction is more probable, which also reduces the value of D_e. Another cause can be that the intensity of the field acting on the ion differs from the mean macroscopic field in the sample.

[illegible]

Card [illegible]

17.1200
9.6100

S/112/59/000/015/052/068
A052/A002

Translation from: Referativnyy zhurnal, Elektrotekhnika, 1959, No. 15, p. 175, # 32198

AUTHOR: Mazurin, O.V.

TITLE: Method of Automatic Temperature Control by Using a Glass Thermistor

PERIODICAL: Tr. Leningr. tekhnol. in-ta im. Lensoveta, 1958, No. 49, pp. 78-83

TEXT: A method of the temperature control by a glass thermistor with a high coefficient of thermal resistance is described. A glass bead with two sealed-in nickel wires serves as a pickup. A characteristic feature of glass thermistors is that they must be fed with a-c, since d-c passing through a ionic conductor leads to a sharp increase of resistance in time. The circuit is based on an a-c bridge. To one of arms of the bridge the thermistor is connected, to the second an eight-position change-over switch, to the third fixed and variable resistors, to the fourth only fixed resistor. A signal from the bridge diagonal is amplified by the "6 C 5" (6S5) triode and is fed to the grid of a thyratron. The andde circuit of the latter is fed with a-c. Therefore, the

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A052/A002

Method of Automatic Temperature Control by Using a Glass Thermistor

thyratron is phase-sensitive in respect to the voltage supplied to the grid. When the resistance of thermistor exceeds a given value, the furnace is always switched on independently of the magnitude of unbalance. A change of the controlled temperature is achieved by changing resistors in the arms of the a-c bridge. A "MKU-48" (MKU-48) relay is used in the circuit. The described circuit can be used for temperature control in laboratories in absence of control potentiometers or contact galvanometers. There are: 1 illustration and 1 reference.

A.V.K.

Translator's note: This is the full translation of the original Russian abstract.

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MAZURIN, O.V.

Utilization of the neutralized effect for increasing the electrical resistance of glass 16III. Trudy LTI no.49:84 '58. (MIRA 15:5)

(Glass--Electric properties)

24(3)

AUTHORS: Mazurin O.V., Brailovskiy, V.B. SOV/139-59-1-20/34

TITLE: The Electrical Conductivity of Glass Belonging to the System $PbO-Al_2O_3-SiO_2$ (Elektroprovodnost' stekol sistemy $PbO-Al_2O_3-SiO_2$)

PERIODICAL: Izvestiya Vysshikh Uchebnykh Zavedeniy, Fizika, 1959, Nr 1, pp 117-119 (USSR)

ABSTRACT: The dependence of the electrical conductivity of glass belonging to the system $PbO-Al_2O_3-SiO_2$ was measured as a function of temperature. The method of measurement has been described earlier (Ref 1). The composition of the glass is shown in Table 1, in which the first column gives the number of the glass sample, the second, third and fourth columns give the composition and the last gives the logarithm of the electrical resistivity ρ at 250 and 300 °C. Fig 1 shows the effect of replacement of SiO_2 by aluminium oxide on the resistivity. Equimolecular replacement of SiO_2 leads to a considerable increase in the resistivity of glasses of the type $RO-SiO_2$ (where RO = PbO, BaO, CaO). When the PbO content is 50% the

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The Electrical Conductivity of Glass Belonging to the System $PbO-Al_2O_3-SiO_2$

quantity lg ρ varies between about 8.8 and 11.7 for Al_2O_3 between 0 and 40%.

There are 1 figure, 2 tables and 10 references, of which 1 is German, 1 English and 8 Soviet.

ASSOCIATION: Leningradskiy Tekhnologicheskiy Institut imeni Lensoveta (Leningrad Technological Institute imeni Lensovet)

SUBMITTED: July 23, 1958

Card 2/2

MAZURIN, O. V.

15(0),15(2)
SOV/30-59-2-45/60

AUTHOR: Kolomiyets, B. T., Doctor of Technical Sciences

TITLE: The Investigation of Vitreous Semi-Conductors (Izucheniye stekloobraznykh poluprovodnikov)

PERIODICAL: Vestnik Akademii nauk SSSR, 1959, Nr 2, pp 103-104 (USSR)

ABSTRACT: From December 1 to 2, 1958 a conference took place on this problem at the Fiziko-tekhnicheskiy institut Akademii nauk SSSR (Physicotechnical Institute of the Academy of Sciences, USSR). It dealt with the discussion of the experiments carried out, mutual information on the course of experiments and their general coordination. Representatives from 11 scientific institutions attended the conference. The following lectures were heard: V. V. Tarasov, Moskovskiy khimiko-tekhnologicheskiy institut (Moscow Chemicotechnological Institute) spoke of experimental results connected with the investigation of heat capacity at low temperatures of As_2S_3 and As_2Se_3. His second report dealt with the polymeric concept of glass formation and semiconductors in general.
R. L. Myuller, Gosudarstvennyy opticheskiy institut (State Optical Institute) emphasized the decisive role played by the covalent bond in glass formation.
A. A. Vaypolin, Institut khimii silikatov Akademii nauk SSSR (Institute of Silicate Chemistry of the AS USSR) described the investigation of the structure of the system As_2Se_3-As_2Te_3 by X-ray methods.
L. I. Tatarinova, Institut kristallografii Akademii nauk SSSR (Crystallographical Institute of the AS USSR) reported on the structural investigation of some chalcogenids by electron-diffraction.
A. I. Gubanov and V. Ya. Khartsiyev, Fiziko-tekhnicheskiy institut (Physicotechnical Institute) reported on theoretical problems of the semiconductor properties of glass types.
V. P. Shilo discussed working results in the determination of boundaries in glass formation in the As_2S_3 and As_2Se_3 systems.
N. A. Goryunova compared the boundaries of vitreous state in these systems with the criteria of glass formation obtained by Zakhariasen and Vinter-Kleyn and found that there exists no correlation between them.
T. F. Nasarova investigated the electric properties of semiconductor glass types in the TlSe - As_2Se_3 system.
B. T. Kolomiyets spoke of research work in the field of inner photoelectric effect done by T. N. Mamontova.
B. V. Pavlov discussed experimental results of the position of the absorption boundary as dependent on the change of composition of glass types.
V. P. Pozdnev reported on material he obtained in the investigation of the viscosity of glass types in the As_2Se_3 - As_2Te_3 system.
B. T. Kolomiyets summarized the working results obtained by the Physicotechnical Institute and found that in the materials investigated the short-range order is not changed in the transition from the vitreous into the crystalline state.
O. V. Mazurin, Leningradskiy khimiko-tekhnologicheskiy institut (Leningrad Chemicotechnical Institute) described the investigation of the semiconductor properties of silicate and borosilicate glass types with the addition of iron-cobalt and titanium oxides.
E. V. Petrosyan, Moskovskiy institut elektrotekhnicheskogo stekla (Moscow Institute of Electrotechnical Glass) outlined the investigation results of the boundaries of glass formation and the electric properties of contiguous semiconductor glass types of the composition V_2O_5 - P_2O_5 - R_xO_y (R- elements of the I, II, III, IV and V groups of the periodic system).
The next conference on semi-conductor glass types will probably be held in 1959.

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5(4) SOV/54-59-2-19/24

AUTHORS: Parfenov, A. I., Klimov, A. F., Mazurin, O. V.

TITLE: Electric Conductivity of the Glasses of the System Li_2O-Cs_2O-SiO_2 (Elektroprovodnost' stekol sistemy Li_2O-Cs_2O-SiO_2)

PERIODICAL: Vestnik Leningradskogo universiteta. Seriya fiziki i khimii, 1959, Nr 2, pp 129-135 (USSR)

ABSTRACT: The results of the investigations of the conductivity and density of glasses of the system mentioned in the title are indicated in this article. The mentioned system is used as a basis for the working out of formulas for electrode glasses. These glasses have at present a resistance of 500 MΩ . The working method with them is much simplified if these glasses have a lower resistance. Under this point of view, the investigations described in this article were carried out. The designations of the glasses produced and investigated for the experiments, and their composition, are compiled in table 1. An analysis carried out on the glasses showed a deviation of some percent in the composition as compared with the quantities of single components used for the preparation. The density was determined by hydrostatic weighing of the samples in water and

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benzene at room temperature (error ±0.1 - 0.2 %). The conductivity was determined on plane-parallel samples by graphite electrodes, the resistance of the glasses up to $10^6\Omega$ by a bridge circuit, higher resistances by a megaohmmeter of the MOM-ZM type (error 20 - 30 %). The values of the mentioned determination quantities are compiled in table 2. The table also contains the activation energy E for the movement of ions in kcal/Mol and lg A computed by the formula for electric conductivity $\kappa = Ae^{B/kT}$. From the density of the glasses, their molecular volume was computed, and - as the Cs-glasses have the highest density - the dependence of the molar volume on the concentration of Cs_2O was determined at a constant content of Li_2O (Fig 1, and content of Cs_2O+Li_2O = const. = =27 mol% Fig 2). For investigating the conductivity of glasses of different composition, the neutralization effect was investigated which occurs by replacing one basic oxide by another (Fig 3). This points to a direct dependence between the differences of radii of the basic ions entering into the system, and the character of the neutralization effect.

Electric Conductivity of the Glasses of the System Li_2O-Cs_2O-SiO_2 SOV/54-59-2-19/24

In the investigation of the activation energy at the transition from sodium-potassium-silicate glasses to the system considered, no influence of the ion radius on its value could be observed (Fig 6). From all these investigations, the following conclusions are made: The electric conductivity of lithium glasses decreases considerably with an increase in the content of Cs_2O. For electrodes, which are only used at low temperatures, glasses with a low content of Cs_2O (up to 6 Mol%) should be preferred. With an increase in the content of Cs_2O, the toughness and also the melting temperature for glasses rise so that for electrodes used at higher temperatures an increase in the content of Cs_2O up to 9 Mol% is permissible. Glasses with a higher content of Cs_2O are unsuitable for use as electrodes due to their high resistance. There are 6 figures, 3 tables, and 4 references, 3 of which are Soviet.

SUBMITTED: October 28, 1958
Card 3/3

5(2),15(2)
AUTHORS: Mazurin, O. V., Brailovskaya, R. V. 307/156-59-2-42/48

TITLE: The Influence of the Ions of Divalent Metals on the Mobility of the Sodium-ions in Solid Glass (Vliyaniye ionov dvukhvalentnykh metallov na podvizhnost' ionov natriya v tverdom stekle)

PERIODICAL: Nauchnyye doklady vysshey shkoly. Khimiya i khimicheskaya tekhnologiya, 1959, Nr 2, pp 383-385 (USSR)

ABSTRACT: The soundness of the anchorage of the alkali-ions in the grid of a three-component glass with the general formula Na_2O(10, 20, 30 mol%) - RO(0, 10, 20%) - SiO_2 has been investigated. The dependence of the conductivity from the temperature was measured, with the following being introduced for RO : BeO, MgO, ZnO, CaO, SrO, PbO, or BaO. The measuring of the electric conductivity has already been described in (Ref 1). It is ascertained that the conductivity of the glass drops the more, the bigger the radius of the introduced divalent ion is. The activation-energy for glasses with 20% Na_2O and 20% RO increases from 31,400 cal/mol for BeO to 44,500 cal/mol for BaO. A dependence of the density of the glass grid from the radius

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The Influence of the Ions of Divalent Metals on the Mobility of the Sodium-ions in Solid Glass

SOV/156-59-2-42/48

of the introduced divalent ion has not been found (Fig and Table). The decrease in motility of the sodium-ion at the introduction of divalent metal-ions can therefore not be traced to the increase density. It is explained by the polarizing qualities of the divalent ion, which activates the reciprocal action between the oxygen-ions and the sodium-ions and thereby reduces the mobility of the sodium-ions. The authors thank Professor K. S. Yevstrop'yev for his interest shown in the work. There are 1 figure, 1 table, and 3 Soviet references.

PRESENTED BY: Kafedra stekla Leningradskogo tekhnologicheskogo instituta im. Lensoveta (Chair for Glass Leningrad Technological Institute imeni Lensoveta)

SUBMITTED: September 26, 1958

Card 2/2

MAZURIN, O.V.

15(2)

AUTHOR: None Given SOV/72-59-5-1/23

TITLE: Glass Science at the VIII Mendeleyev Congress (Nauka o steklo na VIII Mendeleyevskom s"yezde)

PERIODICAL: Steklo i keramika, 1959, Nr 5, pp 1-4 (USSR)

ABSTRACT: In the beginning a proclamation of the TsK KPSS to the personnel of the building material industries for a qualitative and quantitative increase of production is mentioned. The Congress took place in Moscow in the second half of March of the current year and was devoted to the 125th anniversary of the great scholar's birthday. Outstanding chemists of the Soviet Union and the People's Democracies attended the Congress. The principal problems of the development of chemistry were discussed at the plenary meetings and the meetings of the 18 Congress sections. Professor I. I. Kitaygorodskiy opened the meetings of the sub-section for glass and gave a survey of the stages of development of Soviet glass production as well as of a number of promising tasks in the field of glass technology. Moreover, the following lectures were held: Doctor Korani (People's Republic of Hungary) investigated the structure of the top-layers of glass;

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A. I. Avgustinnik (LTI imeni Lensovet) discussed the formation of a finely disperse crystalline phase from the glass-like phase; V. V. Vargin and G. O. Karapetyan (GOI) reported on absorption spectra, luminiscence, and photochemical properties of cerium-glass types; A. G. Vlasov (GOI) reported on the quantitative reciprocal relations between ordered and disordered glass phases; Ye. A. Poray-Koshits, Institut khimii silikatov AN SSSR (Institute of Silicate Chemistry of the AS USSR) discussed the reasons for the disagreement on the problem of the structure of glass-like substances; Professor O. K. Botvinkin, N. I. Ananich, and M. L. Mironova, Institut stekla (Glass Institute) reported on the Investigation of the Glass Structure by the Method of Thermal Analysis and Optical Polarization; Ye. V. Podushko (GOI) discussed the new method of electric glass melting and the melting of silicates by means of high-frequency current; Yu. G. Shteynberg reported on strontium-magnesium glases without lead and boron for faience and majolica which have been developed in the Gosudarstvennyy nauchno-issledovatel'skiy keramicheskiy institut (State Scientific Research Institute of Ceramics); L. S. Yastrebova, and V. S. Molchanov (GOI) discussed the role played by the

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surface protection film in the destruction of silicate glasses; G. I. Veynberg (GOI) discussed the coloring characteristics and the technology of phosphate glasses; O. V. Mazurin (LTI) reported on the mobility of sodium ions in glass types of the system $Na_2O-RO-SiO_2$; Z. A. Nosova (NII Stroykeramika) discussed the process of subduing the glases by lead oxide and zirconium; L. G. Mel'nichenko, Khar'kovskiy politekhnicheskiy institut (Khar'kov Polytechnic Institute) reported on silicate formation and sintering processes in the briquetted glass layer; K. M. Yevstrop'yev investigated various types of glass; N. N. Semenov (Glass Institute) reported on the determination of impurities in silica by spectroscopic analysis; G. S. Bogdanova, and Ye. M. Orlova (Glass Institute) reported on types of electrode glass which has been devised by them. Yu. V. Rogoshin (Glass Institute) discussed the kinetics of the formation of crystallization centers in photo-sensitive types of glass; Z. N. Zyritskaya (Glass Institute) discussed the results of the investigation of the tendency of phosphatic systems towards glass formation; L. A. Grechanik, N. V. Petrovykh, and V. G. Karpechenko (NIIES) reported on the investigation of types of semiconducting oxide glass on the basis of V_2O_5; N. V. Solomin, L. A. Grechanik, I. V. Shpakova, and Ye. A. Faynberg (NIIES) discussed the production of conductive films on types of glass which contain components easily to be regenerated.

MAZURIN, O.V.; GOLIKOVA, E.V.; SHTOL'TSER, N.V.

Effect of calcium oxide on the electric conductivity of glasses containing two alkali metal oxides. Fiz. tver. tela 1 no.4:630-631 '59. (MIRA 12:6)
(Calcium oxide) (Glass--Electric properties)

PARFENOV, A.I.; KLIMOV, A.F.; MAZURIN, O.V.

Electric conductivity of glasses of the system Li_2O - Cs_2O SiO_2.
Vest.LGU 14 no.10:129-135 '59. (MIRA 12:6)
(Glass--Electric properties)

MAZURIN, O. V.

PHASE I BOOK EXPLOITATION SOV/5035

Vsesoyuznoye soveshchaniye po stekloobraznomu sostoyaniyu. 3d, Leningrad, 1959.

Stekloobraznoye sostoyaniye, trudy Tret'yego Vsesoyuznogo soveshchaniya Leningrad, 16-20 noyabrya 1959 (Vitreous State; Transactions of the Third All-Union Conference on the Vitreous State, Held in Leningrad on November 16-20, 1959) Moscow, Izd-vo AN SSSR, 1960. 534 p. Errata slip inserted. 3,200 copies printed. (Series: Its: Trudy)

Sponsoring Agencies: Institut khimii silikatov Akademii nauk SSSR. Vsesoyuznoye khimicheskoye obshchestvo imeni D.I. Mendeleyeva and Gosudarstvennyy ordena Lenina opticheskiy institut imeni S.I. Vavilova.

Editorial Board: A.I. Avgustinik, V.P. Barzakovskiy, M.A. Bezborodov, O.K. Botvinkin, V.V.Vargin, A.G. Vlasov, K.S. Yevstrop'yev, A.A. Lebedev, M.A. Matveyev, V.S. Molchanov, R.L. Myuller, Ye.A. Poray-Koshits, Chairman, N.A. Toropov, V.A. Florinskaya, A.K. Yakhkind; Ed. of Publishing House: I.V. Suvorov; Tech. Ed.: V.T. Bochever.

PURPOSE: This book is intended for researchers in the science and technology of glasses.

COVERAGE: The book contains the reports and discussions of the Third All-Union Conference on the Vitreous State, held in Leningrad on November 16-19, 1959. They deal with the methods and results of studying the structure of glasses, the relation between the structure and properties of glasses, the nature of the chemical bond and glass structure, and the crystallochemistry of glass. Fused silica, mechanism of vitrification, optical properties and glass structure, and the electrical properties of glasses are also discussed. A number of the reports deal with the dependence of glass properties on composition, the tinting of glasses and radiation effects, and mechanical, technical, and chemical properties of glasses. Other papers treat glass semiconductors and soda borosilicate glasses. The Conference was attended by more than 300 delegates from Soviet and East German scientific organizations. Among the participants in the discussions were N.V. Solomin, Ye. V. Kuvshinskiy, Yu.A. Gastev, V.P. Pryanishnikov, Yu. Ya. Gotlib, O.P. Mchedlov-Petrosyan, G.P. Mikhaylov, S.N. Petrov, A.N. Lazarev, D.I. Levin, A.V. Shatilov, N.T. Ploshchinskiy, A.Ya. Kuznetsov, E.V. Degtyareva, G.V. Byurganovskaya, A.A. Kalenov, M.N. Skornyakov, P.Ya. Bokin, E.K. Keller, Ya.A. Kuznetsov, V.P. Pozdnev, R.S. Shevelevich, Z.G. Pinsker, and O.S. Molchanova. The final session of the Conference was addressed by Professor I.I. Kitaygorodskiy, Honored Scientist and Engineer, Doctor of Technical Sciences. The following institutes were cited for their contribution to the development of glass science and technology. Gosudarstvennyy opticheskiy institut (State Optical Institute), Institut khimii silikatov AN SSSR (Institute of Silicate Chemistry, AS USSR), Fizicheskiy institut AN SSSR (Physics Institute AS USSR), Fiziko-tekhnicheskiy institut AN SSSR (Physicotechnical Institute AS USSR), Institut fiziki AN BSSR, Minsk (Institute of Physics, Academy of Sciences, Belorusskaya SSR, Minsk), Laboratory of Physical Chemistry of Silicates of the Institut obshchey i neorganicheskoy khimii AN BSSR, Minsk (Institute of General and Inorganic Chemistry, Academy of Sciences, Belorusskaya SSR, Minsk), Institut vysokomolekulyarnykh soyedineniy AN SSSR (Institute of High Molecular Compounds, AS USSR), Gosudarstvennyy institut stekla (State Institute for Glass), Gosudarstvennyy institut steklovolokna (State Institute for Glass Fibers), Gosudarstvennyy institut elektrotekhnicheskogo stekla (State Institute for Electrical Glass), Sibirskiy fiziko-technicheskiy institut, Tomsk (Siberian Physicotechnical Institute, Tomsk), Leningradskiy gosudarstvennyy universitet (Leningrad State University), Moskovskiy khimiko-tekhnologicheskiy institut (Moscow Institute of Chemical Technology), Leningradskiy tekhnologicheskiy institut im. Lensoveta (Leningrad Technological Institut imeni Lensovet), Belorusskiy politekhnicheskiy institut Minsk (Belorussian Polytechnic Institute, Minsk), Novocherkasskiy politekhnicheskiy institut (Novocherkassk Polytechnic Institute), and Sverdlovskiy politekhnicheskiy institut (Sverdlovsk Polytechnic Institute). The Conference was sponsored by the Institute of Silicate Chemistry AS USSR (Acting Director - A.S. Gotlib), the Vsesoyuznoye khimicheskoye obshchestvo im. D.I. Mendeleyeva (All-Union Chemical Society imeni D.I. Mendeleyev), and the Gosudarstvennyy ordena Lenina opticheskiy institut imeni S.I. Vavilova (State "Order of Lenin" Optical Institute imeni S.I. Vavilov). The 15 resolutions of the Conference include recommendations to organize a Center for the purpose of coordinating the research on glass, to publish a new periodical under the title "Fizika i khimiya stekla" (Physics and Chemistry of Glass), and to join the International Committee on Glass. The Conference thanks A.A. Lebedev, Academician, Professor, and Chairman of the Organization Committee, Ye.A. Poray-Koshits, Doctor of Physics and Mathematics, Member of the Organizational Committee, and R.L. Myuller, Doctor of Chemical Sciences, Member of the Organizational Committee. The editorial board thanks G.M. Bartenev, M.V. Vol'kenshteyn, I.I. [illegible], D.P. Dobychin, S.K. Dubrovo, V.A. Ioffe, and B.T. Kolomiyets. References accompany individual reports.

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Vitreous State (Cont.) SOV/5035

PHYSICOCHEMICAL PROPERTIES OF GLASSES

Dependence of Properties on Composition

Vitreous State (Cont.) SOV/5035

Card 14/[illegible]

Mazurin, O. V.

S/072/60/000/03/021/025
B005/B008

AUTHOR: Syritskaya, Z. M.

TITLE: 3rd All-Union Conference on the Vitreous State

PERIODICAL: Steklo i keramika, 1960, Nr 3, pp 43-46 (USSR)

ABSTRACT: The 3rd All-Union Conference on the Vitreous State was held in
Leningrad at the end of 1959. It was organized by the Institut
khimii silikatov AN SSSR (Institute of the Chemistry of Silicates
AS USSR), Vsesoyuznoye khimicheskoye obshchestvo imeni D. I.
Mendeleyeva (All-Union Chemical Society imeni D. I. Mendeleyev)
and Gosudarstvennyy opticheskiy institut imeni S. I. Vavilova
(State Optical Institute imeni S. I. Vavilov). More than 100
reports on the structure of glass, investigation methods of the
vitreous state, the mechanism of vitrification and physicochemical
and technical properties of glasses were delivered. The Conference
was opened by Academician A. A. Lebedev. [illegible]
[illegible]. At the 5th meeting, 9 reports dealt with
the investigation results of sodium-boron-silicate glasses. A. A.
Appen and Gan' Fu-Si, "Boron and Alumoboron Anomaly of the Proper-
ties of Silicate Glasses"; Ye. Y. Galant, "On the Coordination Num-
bers of Aluminum and Boron in Some Glasses"; S. P. Zhdanov reported
on structural changes in boron-silicate glasses; Ye. A. Poray-Koshits
and S. P. Zhdanov reported on some controversial problems concerning
the structure of boron-silicate glasses and their porous products;
Ye. A. Poray-Koshits and N. S. Andreyev, "Submicroscopic Inhomo-
geneities in the Structure of Complex Glasses". The 15 reports at

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the 6th meeting dealt with the electric properties of glasses.
L. N. Belyavskaya reported on the structure determination of glass
with the aid of an inhomogeneous electric field; N. N. Vorob'yevich
and V. I. Odelevskiy, "Structure and Properties of Some Oxide Glas-
ses in the Light of the Polymer-theory of the Vitreous State";
R. L. Myuller reported on the agility and the degree of dissociation
as functions of the ionic and atomar composition of the glass;
V. I. Odelevskiy reported on the nature of dielectric losses in
glasslike and crystalline aluminosilicates; V. P. Petrosyan, "In-
vestigation of the Dielectric Polarization and the Losses in Phos-
phate Glasses"; V. A. Presnov, V. I. Ozman and L. N. Krasil'nikov
reported on investigations of the conductivity of glasses in elec-
tric high-tension fields, K. K. Yevstrop'yev on the diffusion of
Na^{22} and K^{42} in some silicate glasses, V. A. Ioffe, L. S. Yaschev-
skaya and G. I. Khvostenko on electric properties of crystalline
and glasslike aluminosilicates. O. V. Mazurin spoke on his studies
which were carried out under the supervision of Professor K. S.
Yevstrop'yev at the Kafedra stekla LTI imeni Lensoveta (Chair for
Glass of the Leningrad Technological Institute imeni Lensovet) in
the report: "The Dependence of the Electroconductivity of Glasses
on the Chemical Composition". V. A. Khar'yuzov, O. V. Mazurin and
N. R. Zabkova gave investigation results on the specific electro-
conductivity of glasses of the system SiO_2 - B_2O_3 - BaO in the tem-

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perature range of from 400-1300° and on the influence of additions
of aluminum- and zinc oxide on the electric conductivity of these
glasses. At the 7th meeting, 6 reports dealt with glasses as semi-
conductors, 9 with the coloring of glasses and the influence of ra-
diation and 4 reports with technical properties of glasses. V. A.
Ioffe and G. I. Khvostenko, "Electric Properties of Some Semicon-
ductor Glasses". B. T. Kolomiyets, N. A. Goryunova and V. P. Shilo
reported on methods for the production of chalcogenide glasses,
on some of their general properties and on the limits of the vitreous
state in the systems Tl_2Se - As_2Se_3, Tl_2Se - Sb_2Se_3, Sb_2Se_3 - As_2Se_3,
Tl - As - Se. B. T. Kolomiyets and B. V. Pavlov reported on the op-
tical absorption in a number of binary chalcogenide systems. B. T.
Kolomiyets, T. N. Mamontova and G. P. Nazarova reported on the elec-
tron conductivity of chalcogenide glasses. I. A. Vaypolin, Ye. A.
Poray-Koshits, "Radiographic Investigation of the Structure of Vi-
treous Arsenic Chalcogenides". V. V. Tarasov and V. A. Rosanovskiy
reported on the chain structure of the vitreous arsenious sulphide
determined by them with calorimetric measurements. K. P. Azarov
reported on structure and properties of ferrous boron glasses and

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(3V)

S/139/60/000/03/007/045
E140/E335

AUTHORS: Mazurin, O.V. and Lev, Ye.Ya.

TITLE: The Influence of Alkali-metal Oxide Additions on the Electrical Properties of Alkali-free Glasses

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Fizika, 1960, No 3, pp 43 - 51 (USSR)

ABSTRACT: This is a continuation of earlier work (Ref 1) - a study of alkali-free glasses - in which the effect of aluminium oxide on the electrical properties was investigated. It is important to know the effect of alkali-metal impurities in these glasses to estimate the required purity of the raw materials and the possibility of deliberate inclusions of alkali-metal oxide in the recipe to reduce the smelting temperature of the glass and improve its properties (mechanical, thermal, etc). A study of the literature (Refs 1-10) gives a basis for assuming a special form of interaction of lead silicates with alkali oxides leading to an increased electrical resistance.
Electrical resistance of the glasses studied was measured by the method described in an earlier paper (Ref 11).

S/139/60/000/03/007/045
E140/E335

The Influence of Alkali-metal Oxide Additions on the Electrical Properties of Alkali-free Glasses

It was found that borate glasses always have higher resistance than silicate, while borosilicates are intermediate. Introduction of aluminium into alkali-free glasses increases their resistance but the opposite effect occurs with borate glasses. A calcium-borate glass had the highest resistance, appreciably exceeding that of fused quartz. Up to about 5-8 mol.% the addition of alkali-metal oxides has practically no effect on the resistance, after which the resistance drops rapidly. It is assumed that at low concentrations the conduction mechanism remains that of alkali-free glass, while above the critical concentration the conduction mechanism is that of alkali-glass. There are 3 figures, 1 table and 20 references, 15 of which are Soviet and 5 English.

ASSOCIATION: Leningradskiy tekhnologicheskiy institut imeni Lensoveta (Leningrad Technological Institute imeni Lensovet)

SUBMITTED: April 10, 1959

Card2/2

84985

S/181/60/002/007/043/047/XX
B006/B067

15.2140

AUTHORS: Mazurin, O. V., Brailovskaya, R. V.

TITLE: Electrical Conductivity of Glasses of the System $Na_2O - RO - SiO_2$

PERIODICAL: Fizika tverdogo tela, 1960, Vol. 2, No. 7, pp. 1477-1481

TEXT: The authors describe an investigation of sodium silicate glasses which contained the following divalent oxides: BeO, MgO, CaO, SrO, BaO, ZnO, and PbO. The samples whose chemical composition was examined by control analyses, had the shape of small plane-parallel disks to which round graphite electrodes were attached. The electrical conductivity of each type was measured on at least two samples in the temperature range from 100 to 400°C; the method is described in a special paper (Ref. 8). The compositions of the samples investigated and their resistivities at 150°C are given in Table 1. The reproducibility of the data amounted to 20-30%. In preliminary papers, the effect of divalent metal oxides on the electrical conductivity of alkaline silicate glasses was studied; these

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Electrical Conductivity of Glasses of the System Na_2O - RO - SiO_2

S/181/60/002/007/043/047/XX
B006/B067

studies, however, were incomplete, and since no systematic data on this subject are found in publications, they are given in the present paper. Fig. 1 shows the effect of a substitution of SiO_2 in the glass by the above-mentioned oxides on log ρ (cf. Table 1) with an initial composition of the glass: $Na_2O:SiO_2$ = 20:80; Fig. 2 shows the effect of the substitution of SiO_2 by sodium oxide on the resistivity of glasses containing 20% of RO. The two diagrams show that a substitution of SiO_2 by all these metal oxides leads to an increase in resistivity. According to their effect, the oxides are divided into two groups. BeO, MgO, and ZnO belong to the first group; their effect on conductivity is low, and almost independent of the Na_2O content of the glass. The second group (CaO, SrO, BaO, and PbO) leads to a high increase in resistivity; with a reduction of the Na_2O content, the effect of the oxides of this group increases. Fig. 3 shows the effect of the size of the introduced divalent ion on the resistivity of glasses at 150°C (and an RO content of 20 mole%). The diagram contains three analogous curves (10, 20, and 30 mole% of Na_2O) which show an increase in log ρ with increasing ionic radius. Fig. 4 shows the effect of the ionic radius on the activation energy of sodium ions

Electrical Conductivity of Glasses of the System Na_2O - RO - SiO_2

S/181/60/002/007/043/047/XX
B006/B067

in glasses of the system investigated, which contain 20 mole% of RO (three curves for 10, 20, and 30 mole% of Na_2O); also in this case an increase of the ionic radius leads to an increase in activation energy. Fig. 5 shows log ρ as a function of the ionic radius of glasses of the system investigated, which contain 8.5 moles/l of RO and 8.5 moles/l of Na_2O. Table 2 shows the activation energies of four glasses of a given composition. The fact that, if SiO_2 is replaced by oxides of divalent metals, the resistivity of glasses of this group increases the more the larger the substituting ions, is explained as follows: Substitution leads to the appearance of weakly polarized oxygen ions. These ions are better capable of keeping the nearest sodium ions in their equilibrium position The student K. K. Yakunina assisted in the experiments. A. A. Appen is mentioned. The authors thank Professor Konstantin Sergeyevich Yevstrop'yev for his interest in this work. There are 5 figures, 2 tables, and 13 references: 10 Soviet, 2 German, and 1 US.

IX

ASSOCIATION: Leningradskiy tekhnologicheskiy institut (Leningrad Technological Institute)

Card 3/4

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001033210002-9"

S/153/60/003/006/007/009
B103/B206

AUTHORS: Makarova, T. M., Mazurin, O. V., Molchanov, V. S.

TITLE: Electrical conductivity and chemical stability of silica glass containing two alkali metals

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i khimicheskaya tekhnologiya, v. 3, no. 6, 1960, 1072-1078

TEXT: The authors studied the phenomena which are the mutual basis for the processes of electrical conductivity and chemical destruction of glass. As is known (Refs. 2,3), the electrical conductivity as well as dielectric losses can be reduced by replacing one alkali metal in the glass by another one. This phenomenon was named "neutralization effect" by G. I. Skanavi (Ref. 4). The authors do not consider this special term to be suitable and propose the designation "Two-alkali effect". This effect permits the improvement of the glass insulation properties without notably changing the other properties. Table 1 contains data on the composition of the glass types studied in % by mole. The chemical stability of the glass was determined by its behavior against water by the titration method. The destruc-

tion of the glass (powder 70-50μ) was determined through titration of the water extract with 0.01 N HCL (indicator methyl red). Table 2 shows the resistivity, specific gravity and resistivity (ρ) of the glass types. From these results the authors draw the following conclusions: 1) The increase of the resistance of glass types which is caused by replacing one alkali oxide by another one (two-alkali effect), changes only slightly with regard to value and position of the maximum, if oxides of bivalent metals are introduced instead of silica. The resistance is thereby increased by several orders of magnitude. The maximum is reached at a ratio $Na_2O : K_2O$ = 4:5. 2) With a gradual replacement of N_2O by K_2O, the chemical resistivity of glass types against boiling water passes a maximum which lies at $N_2O : K_2O$ = 5:1. For the glass types investigated the resistivity increase lies between 74 and 15%, as compared with the resistivity of the best one-alkali glass. The nature of a bivalent metal admixed to a two-alkali glass influences the value of the maximum, but not its position. 3) The aforementioned differences prove that the change of the electrical conductivity on the one hand and the chemical resistivity on the other hand,

represent two fundamentally different phenomena under the influence of the two-alkali metals contained in the glass. The authors state that the increase of resistivity is probably determined by the "multi-component effect". It will obviously take place on the first addition of any new component to an initial glass of arbitrary composition. The authors thank G. V. Bogoyavlenskaya for the analyses made. Papers by O. V. Mazurin and Ye. S. Borisovskiy, by G. A. Pavlova, O. V. Mazurin and Petrovskiy, as well as O. V. Mazurin and R. V. Brailovskaya are mentioned. There are 3 figures, 2 tables, and 10 references: 8 Soviet-bloc.

ASSOCIATION: Leningradskiy tekhnologicheskiy institut im. Lensoveta; Kafedra tekhnologii stekla (Leningrad Institute of Technology imeni Lensovet; Department of Glass Technology). Gosudarstvennyy opticheskiy institut (State Optical Institute)

SUBMITTED: April 2, 1959

S/081/62/000/004/053/087
B150/B138

AUTHORS: Yevstrop'yev, K. S., Mazurin, O. V., Khar'yuzov, V. A.

TITLE: Electrical conductivity of oxygen and oxygen-free glasses with n-type conductivity

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 4, 1962, 386, abstract 4K280 (Tr. Leningr. tekhnol. in-ta, im. Lensoveta, no. 52, 1961, 16-25)

TEXT: A short survey. As regards their electrical properties, n-type semiconductor glasses occupy a position adjacent to those with ion conductivity. In the transitional range the properties of these groups of glasses overlap: semiconductor glasses exist with a high volume resistivity and ion-conducting ones with high specific conductivity. 13 references. [Abstracter's note: Complete translation.]

Card 1/1

MAZURIN, O.V.; TSEKHOMSKIY, V.A.

Nature of the increase of the electric resistance of alkali glass in case of its complete crystallization. Trudy LTI no.59:33-35 '61.

Effect of the complete crystallization of some lithium-silicate glasses on their electric resistance. Ibid.:36-39 (MIRA 17:9)

38586
S/081/62/000/010/066/085
B166/B180

N. 7640

AUTHORS: Mazurin, O. V., Tsekhomskiy, V. A.

TITLE: Influence of complete crystallization of certain lithium silicate glasses on their electrical resistivity

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 10, 1962, 420, abstract 10K270 (Tr. Leningr. tekhnol. in-ta im. Lensoveta, no. 59, 1961, 36 - 39)

TEXT: The studies here cover the influence of crystallization on the electrical resistivity of glasses containing 27 - 33% Li_2O with and without additions of CaO, BaO, TiO_2 and F. Crystallization increases the electrical resistivity several times and doubles the activation energy. The introduction of additives and variations in the Li_2O content have little effect on the electrical resistivity of crystallized samples. A comparison was made with the electrical resistivity of crystallized sodium silicate glasses. [Abstracter's note: Complete translation.]

Card 1/1

YEVSTROP'YEV, K.K.; MAZURIN, O.V.; MOLCHANOV, V.S.

Relation between certain physicochemical properties of glasses and their composition. Zhur.VKHO 6 no.1:114-116 '61. (MIRA 14:3)
(Glass)

44300

S/058/62/000/012/032/048
A160/A101

15.2640

AUTHOR: Mazurin, O. V.

TITLE: The electric properties of glass (The region of weak fields)

PERIODICAL: Referativnyy zhurnal, Fizika, no. 12, 1962, 19, abstract 12D133 ("Tr. Leningr. tekhnol. in-ta im. "Lensoveta", no. 62, 1962, 162 pages, illustrated)

TEXT: This is a monograph of the electric properties of solid inorganic glasses, except for glasses with clearly-expressed semiconductor properties. The 1st chapter deals with elementary data information on the physics of dielectrics. The second chapter investigates the glass in a constant field. Reported are the problems of the effect of the thermal history, the action time of the applied voltage, and the glass composition on the volumetric electric conductivity, and also problems of the temperature dependence of the electric conductivity. The electric surface conductivity is rather briefly considered. The glass in an alternating electric field is considered in the 3rd chapter. Presented are the results of investigations dealing with the temperature and frequency relations of dielectric losses and permeability, and also of the effect of the

Card 1/2

The electric properties of glass...

glass composition on them. The 4th chapter deals with the effect of partial and full crystallization on the electric properties of glass. In addition to review material, presented are non-published results of the author and of his associates. There are 155 references.

[Abstracter's note: Complete translation]

Card 2/2

VARGIN, Vladimir Vladimirovich; GUTOROVA, Lyubov' L'vovna; MAZURIN, Oleg Vsevolodovich; KHODIKEL', Yevgeniya Pavlovna; PEVZNER, B.Z., red.

[Steel enameled electroluminescent panels developed by the Leningrad Technological Institute in 1963] Stal'nye emalirovannye elektroliuminestsentnye paneli LTI 1963 goda. Leningrad, 1963. 20 p. (Leningradskii dom nauchno-tekhnicheskoi propagandy. Obmen peredovym opytom. Seriia: Zashchita metallov ot korrozii, iznosostoikie antifriktsionnye i dekorativnye pokrytiia, no.8) (MIRA 17:5)

TSEKHOMSKIY, V.A.; MAZURIN, O.V.; YEVSTROP'YEV, K.K.

Characteristics of the conductivity of aluminosilicate glasses. Fiz. tver. tela 5 no.2:586-589 F '63. (MIRA 16:5)

1. Leningradskiy tekhnologicheskiy institut imeni Lensoveta i Gosudarstvennyy opticheskiy institut imeni S.I.Vavilova.
(Aluminosilicates—Electric properties)

MAZURIN, O. V.

"The problem of microinhomogeneity of glasses in the light of studying their electrical properties."

report submitted for 4th All-Union Conf on Structure of Glass, Leningrad, 16-21 Mar 64.

ACCESSION NR: AT4040548 S/0000/64/000/000/0106/0115

AUTHOR: Nikol'skiy, B. P.; Shul'ts, M. M.; Peshekhonova, N. V.; Parfenov, A.I.; Mazurin, O. V.

TITLE: Lithium-cesium-lanthanum silicate electrode glass for pH determinations

SOURCE: Soveshchaniye po khimii redkikh elementov. Leningrad, 1961. Khimiya redkikh elementov (Chemistry of rare elements); doklady* soveshchaniya. Leningrad, Izd-vo Leningr. univ., 1964, 106-115

TOPIC TAGS: glass, electrode glass, pH measurement, hydrogen electrode, silicate glass, rare earth oxide, glass electrical conductivity, lithium oxide, cesium oxide, lanthanum oxide

ABSTRACT: The authors investigated the effect of the oxides of Li, Cs and La on the limits of linearity of the relationship between pH and electrode potential, as well as the specific electrical conductivity and chemical stability, of electrodes made from glass formed by oxide systems of progressing complexity: Li_2O - SiO_2,

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ACCESSION NR: AT4040548

Li_2O - Cs_2O - SiO_2, Li_2O - CaO(BaO) - SiO_2, Li_2O - La_2O_3(Nd_2O_3) - SiO_2, Li_2O - Cs_2O - La_2O_3 - SiO_2, Li_2O - BaO - La_2O_3 - SiO_2, Li_2O - Cs_2O - CaO - BaO - La_2O_3 - SiO_2, and so forth. The electrical conductivity of binary glass was found to be enhanced by additions of up to 12 mol % Cs_2O; it drops sharply beyond this point to exhibit the well-known Mueller and Markin's effect. Additions of La or Nd oxides to Li_2O - SiO_2 glass shift the lower limit of linearity mentioned above into the acid region and appreciably increase the chemical stability. Li_2O - La_2O_3 - SiO_2 glass systems may be used for measuring pH values as low as 2. To establish the optimal ratios of Cs, Ba and La for glass with a wide range of linearity between pH and electrode protential, a series of Li_2O (24, 27, 30, 33 wt. %) - Cs_2O (0 - 9%) - La_2O_3 (0-9%) - SiO_2 and Li_2O (27%)-BaO(0-9%)-La_2O_3(0-9%)-SiO_2 systems was studied. Glass with 3-5 mol% Cs_2O and 5-8 mol% La_2O_3 was found to possess the highest upper limit of linearity. Orig. art. has: 5 figures and 4 tables.

ASSOCIATION: none

SUBMITTED: 21Jan64 DATE ACQ: 28May64 ENCL: 00

SUB CODE: IC, MT NO REF SOV: 014 OTHER: 001

Card 2/2

MAZURIN, O.V.; TSEKHOMSKIY, V.A.

Electroconductivity of certain alkali metal silicates in the vitreous and crystalline states. Izv. vys. ucheb. zav.; fiz. no.1:125-131 '64. (MIRA 17:3)

1. Leningradskiy tekhnologicheskiy institut imeni Lensoveta.

L 35061-65 EWP(e)/EPA(s)-2/EWT(m)/EPF(c)/EPF(n)-2/EPR/EPA(w)-2/T/EPA(bb)-2/EWP(b)
Pab-10/Pq-4/Pr-4/Ps-4/Pt-10/Pu-4 WW/WH
ACCESSION NR: AP5008168 S/0286/65/000/005/0044/0044
65
B

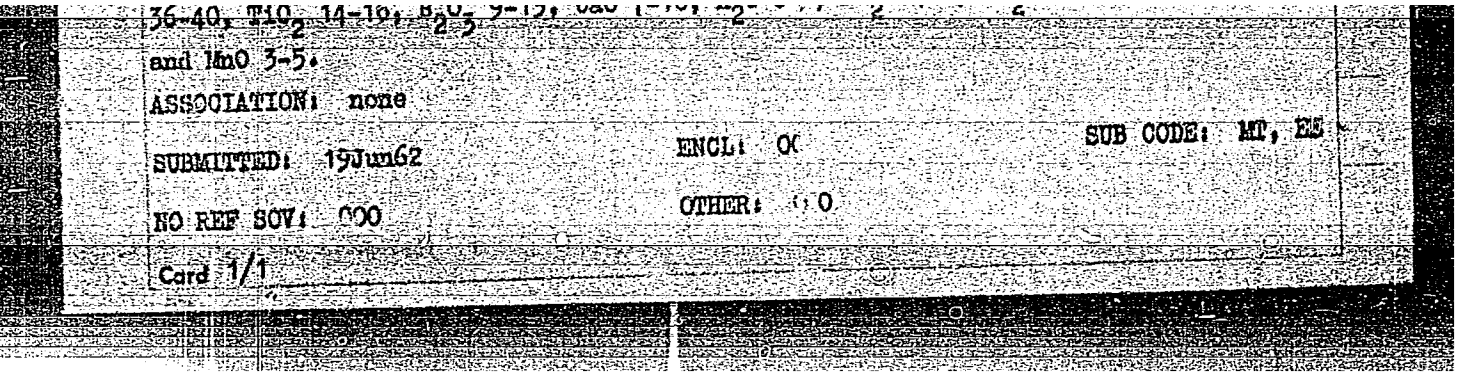
AUTHORS: Mazurin, O. V.; Gavrilova, T. P.; Garbaruk, S. N.; Vol'f, Ye. M.

TITLE: Electrically insulating glass. Class 21, No. 168775

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 5, 1965, 44

TOPIC TAGS: electric insulation, glass, aluminum

ABSTRACT: This Author Certificate presents an electrically insulating glass con- It is designed chiefly for joining with aluminum parts. To



36-40; TiO_2 14-16; B_2O_3 9-13; [illegible]

and MnO 3-5.

ASSOCIATION: none

SUBMITTED: 19Jun62 ENCL: 00 SUB CODE: MT, ES

NO REF SOV: 000 OTHER: 000

Card 1/1

PORAY-KOSHITS, Ye.A., otv. red.; YEVSTROP'YEV, K.S., red.; KONDRAT'YEV, Yu.N., red.; LEBEDEV, A.A., red.; MAZURIN, O.V., red.; MOLCHANOV, V.S., red.; PETROVSKIY, G.T., red.; POZUBENKOV, A.F., red.; TOROPOV, N.A., red.; CHEBOTAREVA, T.Ye., red.; YAKHKIND, A.K., red.

[Vitreous state; transactions] Stekloobraznoe sostoianie; trudy. Moskva, Nauka, 1965. 439 p. (MIRA 18:7)

1. Vsesoyuznoye soveshchaniye po stekloobraznomu sostoyaniyu. 4th, Leningrad, 1964.

L 46108-66 EWP(a)/EWT(m) WH

ACC NR: AP6023928 SOURCE CODE: UR/0363/66/002/007/1328/1330

35
B

AUTHOR: Dgebuadze, T. P.; Mazurin, O. V.

ORG: Institute of Silicate Chemistry, Academy of Sciences, SSSR (Institut khimii silikatov Akademii nauk SSSR); Leningrad Technological Institute im. Lensovet (Leningradskiy tekhnologicheskiy institut)

TITLE: Determination of the character of the chemical heterogeneity of borosilicate glasses by studying their dielectric loss

SOURCE: AN SSSR. Izv. Neorg materialy, v. 2, no. 7, 1966, 1328-1330

TOPIC TAGS: borosilicate glass, dielectric loss, glass property

ABSTRACT: The dielectric loss of glasses of the Na_2O-B_2O_3-SiO_2 system containing 2, 4, 6, 8, and 10 mole % Na_2O and from 22.5 to 24.5 mole % B_2O_3 in the charge (in the glass with 4% Na_2O the B_2O_3 content was 26%) was measured with an MLYe-1 instrument. The temperature dependence of the dielectric loss at a frequency of 10^3 cps was measured in glasses heat-treated for 10 hr at 600°C, and the temperature-frequency dependence of the dielectric loss of glass with 2% Na_2O was determined at 10^4, 10^3, and 4×10^2 cps. The data showed that the relaxation maxima on the dielectric loss curves appear only in glass containing 2% Na_2O, and only after the heat treatment. The maxima disappear again after heating to 760°C, when the glass structure becomes more homogeneous. It is concluded that the method of measuring dielectric loss can be used to determine

Card 1/2 UDC: 54-161.6

L 46108-66
ACC NR: AP6023928

the nature of the chemical inhomogeneity in glasses. Orig. art. has: 3 figures.

SUB CODE: 11/ SUBM DATE: 12Jul65/ ORIG REF: 005/ OTH REF: 004

Card 2/2 JS

MAZURIN, P.M., inzhener.

Cross section of a concrete spillway dam on a rockless foundation. (MLRA 9:12)
Gidr.stroi. 25 no.10:42-43 N '56.
(Dams)

MAZURIN, P.V.

Automatic control of some parameters of radio electric equipment by the statistical testing method. Avtom. i prib. no.4:22-25 O-D '63. (MIRA 16:12)

1. MAZURIN, S.A.; SMIRNOVA, V.YA.
2. USSR (600)
4. Wheat Grass, Crested - Uzbekistan
7. Wheat grass in Uzbekistan. Korm.baza 3 no.10, 1952.

9. Monthly List of Russian Accessions, Library of Congress, January 1953. Unclassified.

MAZURIN, S. A.

Sainfoin - Uzbekistan

Sainfoin in Uzbekistan. Korm. baza 4, No. 3, 1953.

Monthly List of Russian Accessions, Library of Congress
June 1953. UNCL.

USSR/Cultivated Plants - Grains.

Abs Jour : Ref Zhur - Biol., No 5, 1958, 39223

Author : Mazurin, S.A., Solyanik, G.I.
Inst : -
Title : Corn Seed Growing in Uzbekistan.

Orig Pub : Kukuruza, 1957, No 5, 31-34.

Abstract : Suggestion in the organization of hybrid seed production and advice on hybrid assortment for Uzbekistan.

Card 1/1

MAZURIN S. A.

COUNTRY : USSR
CATEGORY : Cultivated Plants. Forage Crops. M

ABS. JOUR. : RZhBiol., No.23 1958. No. 104741

AUTHOR : Mazurin, S. A , Mil'man, G. B.
INST. : -
TITLE : Milo-A Valuable Forage Crop

ORIG. PUB. : Zemledeliye, 1957, No.12, 89

ABSTRACT : On the utilization of milo in Uzbek SSR where it produces up to 800 centners/ha of green roughage and 60 centners/ha of grain. A brief characteristic of a new variety producing two mowings is cited. This variety was obtained from crossing the local variety Khoraki and broomcorn. Agricultural technique for the cultivation of milo is described. It is pointed out that unlike corn, the stems and leaves of milo are fit for utilization as green forage up to the ripening of the grain.

Card: 1/1

80

MAZURIN, S. A., Cand of Agr Sci --- (diss) "Pecularities of the Culture of alfalfa **Under Conditions in Uzbekistan,"**

Stalinabad, 1959, 26 pp (Acad Sci Tadzhik SSR. Division of ~~Agric~~ Agriculture and Biological Sciences) (KL, 6-60, 124)

KOROLENKO, Vladislav Tikhonovich; MAZURIN, Stepan Alekseyevich; TIKHONOVA, I., red.; BABAKHANOV, A., tekhn. red.

[Sorgo and its cultivation in Uzbekistan] Sorgo i ego vozdelyvanie v Uzbekistane. Tashkent, Gosizdat UzSSR, 1962. 95 p. (MIRA 17:1)

MAZURINA, A.A.

L-2

USSR/Cultivated Plants - Grains.

Abs Jour : Ref Zhur - Biologiya, No 16, 25 Aug 1957, 69256

Author : Mazurina, A.A.
Inst :
Title : Leguminous Seed Cultivation on a Bog.

Orig Pub : Sots. s. kh. Uzbekistana, 1956, No 3, 75-76

Abstract : On a bog of hillocks and plain of Milyutinsk selective station (Uzbek SSR) tests were conducted of growing chick peas, lentils, vetchling, and peas over many years. The most productive one was chick peas, which yielded over a 4-year average 9.7 centners/hectare of grain, while lentils yielded 5.7 and vetchling 6.2 centners/hectare. In bog environments practically no crop of the table variety of peas is produced because they are greatly damaged by "brukhus". Experiments conducted in a hilly-boggy section also show a preference for chick pea cultivation. A tall-growing variety of chick pea hybrid

Card 1/2

USSR/Cultivated Plants - Grains. L-2

Abs Jour : Ref Zhur - Biologiya, No 16, 25 Aug 1957, 69256

14 was developed by the Milyutinsk station, which is more suitable for mechanical reaping than the regional varieties, and its yield is just as good.

Card 2/2

MAZURINA, A.F.; DANILOVA, Ye.A., red.; KOVALENKO, V.L., tekhn.red.

[Teaching children to observe nature] Trud i nabliudeniia v prirode. Moskva, Gos.uchebno-pedagog.izd-vo M-va prov.RSFSR, 1960. 240 p. (MIRA 13:6)

1. Metodist Leningradskogo gorodskogo doshkol'nogo metodicheskogo kabineta (for Mazurina).
(Nature study)

MAZURINA, N.P., inzh.

Joining parts with screws having new-design countersunk heads.
Mashinostroitel' no.11:29-30 N '59. (MIRA 13:3)
(Screws)

FEDOROV, I.S., prof.doktor tekhn.nauk; MAZURINA, V.I., inzh.

Physical and mechanical properties of wastes (residues). Gidr. stroi. 30 no.2:41-44 F '60. (MIRA 13:5)
(Industrial wastes) (Dams)

MAZURINA, Z.P.

The AP-1 automatic machine for manufacturing paper bags. Biul.tekh.-inform. no.9:56-57 '58. (MIRA 11:10)
(Paper bags)

KOPYLOV, Igor' Petrovich, kand.tekhn.nauk, dotsent; MAZURKEVICH, Aleksand Tideyevich, inzh.

Single-phase synchronized motor. Izv.vys.ucheb.zav.; elektromekh. 7 no.11:1367-1371 '64. (MIRA 18:3)

1. Kafedra elektricheskikh mashin Moskovskogo energeticheskogo instituta (for Kopylov). 2. Moskovskiy energeticheskiy institut (for Mazurkevich).

LAPIN, P.I.; KOMAROV, I.A.; LEONOV, A.G.; MAZURKEVICH, F.S.; MAKAROV, S.N.; MARTEM'YANOV, P.B.; MOSUNOVA, D.I. [deceased]; SAKHAROV, I.M.; SIDNEVA, S.V.; TSITSIN, N.V., akademik, otv.red.; MAKAROV, S.N., red.izd-va; GUSEVA, A.P., tekhn.red.

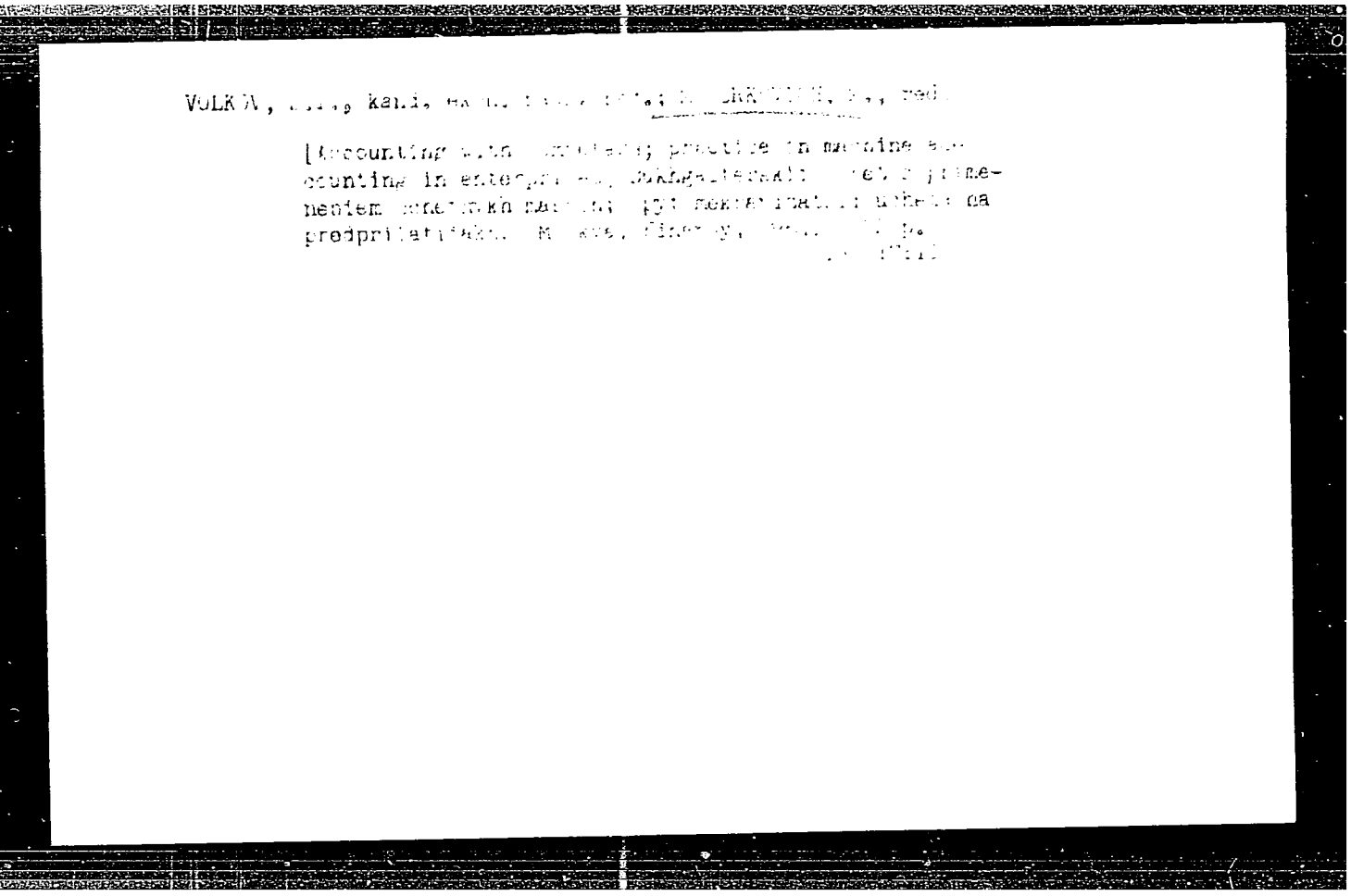
[Trees and shrubs; results obtained in the Main Botanical Garden of the Academy of Sciences of the U.S.S.R.] Derev'ia i kustarniki; kratkie itogi introduktsii v Glavnom botanicheskom sadu Akademii nauk SSSR. Moskva, Izd-vo Akad.nauk SSSR, 1959. 190 p. (MIRA 12:10)

1. Moscow. Glavnyy botanicheskiy sad.
(Trees) (Shrubs)

MAZURKEVICH, G.S.

Changes in the adrenocorticotropic function of the hypophysis in traumatic shock. Pat. fiziol. i eksp. terap. 8 no.6:19-21 N-D '64. (MIRA 18:6)

1. Kafedra patologicheskoy fiziologii (nachal'nik - prof. Ye.V. Maystrakh; nauchnyy rukovoditel' - doktor med. nauk V.F. Kuzin) Voyenno-meditsinskoy ordena Lenina akademii imeni Kirova, Leningrad.



DEDKOV, Ye.; YAKIMOV, V.; MAZURKEVICH, M., red.

[Accounting in public institutions; collection of standard documents] Bukhgalterskii uchet v biudzhetnykh uchrezhdeniiakh; sbornik normativnykh dokumentov. Moskva, Finansy, 1965. 470 p. (MIRA 18:2)

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MAZURKEVICH, Nikolay Stepanovich [Mazurkevych, M.S.]; [illegible]
V.P., red.; MOROZKO, L.G., tekhn. red.

[Maintenance of swine in outdoor runs in summer field bases] Vil'no-vyhul'noe utrymannia svynei v taborakh. Kyiv, Kyivs'ke, obl. knyzhkovo-gazetne vyd-vo, 1963. 16 p. (MIRA 16:10)
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V V MAZURKEVICH, A D SOBOLEV and L N DADUSHKO

"Development of a Procedure for Determining Optimum and Maximum Allowable Operating Conditions for the Use of Receiver-Amplifier Tubes in Pulse Circuits" from Annotations of Works Completed in 1955 at the State Union Sci. Res. Inst; Min. of Radio Engineering Ind.

So: B-3,080,964

MAZURKEVICH, V.V.

Automatic device for lining up parts by wheel face. Mashinostroitel' no. 4:17-18 Ap '61. (MIRA 14:4)
(Grinding machines--Attachments)

S/121/62/000/002/003/[illegible]
D040/D113

AUTHORS: Lur'ye, G.B., Polyanskiy, P.M., Mazurkevich, V.V., [illegible], V.L., Savel'yev, Yu.N., and Fragin, I.Ye.

TITLE: Automation of cylindrical grinding machines

PERIODICAL: Stanki i instrument, no. 2, 1962, 16-21

TEXT: New units designed for automating model 3151, 3161 and 3162 cylindrical grinders are described. These units, also suitable for other grinders of this type, were developed by the Nauchno-issledovatel'skiy institut tekhnologii traktornogo i sel'skokhozyaystvennogo mashinostroyeniya (NIITraktorosel'khozmash) (Technological Scientific Research Institute of Tractor and Farming Machines) in conjunction with the Moskovskiy avtomekhanicheskiy institut (MAMI) (Moscow Automechanical Institute). A simple grinder equipped with such units is converted into an automatic plunge-cut grinder. The following operations are automated: installing and clamping the work; positioning the work at the side face of the grinding wheel; measuring the work prior to and during grinding, with automatic control commands; moving the grinding head at different speeds; unclamping and removing the work [illegible]

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Automation of cylindrical ... S/121/62/[illegible] D040/D113

well as passing it on to the next machine: controlling the wheel dressing and the dressing process. The operation of individual automatic units is described, and the turning mechanism of an "automatic operator" with two gripping "hands", a self-clamping chuck, etc., is described. A grinder fitted with the units and set for grinding the necks of tractor track wheel axles is shown in a photograph. Reference is made to an [illegible] multicommand unit designed for controlling multistage grinding [illegible] characteristic of modern grinding machines (Ref. 2: Izmeritel'noye ustroystvo dlya upravleniya dvizheniyem shlifoval'noy babki kruglošhlifoval'nogo stanka [Measuring device for controlling the motion of the grinding [illegible] cylindrical grinders], Author's Certificate no. 125025, of [illegible]; Ref. 7: Polyanskiy, E.M., Articles in the Symposium "Pribory [illegible] kontrolya" ["Automatic Regulation Instruments and Devices"], [illegible] 196[illegible]). Foreign practice is referred to (British, Czechoslovakian, [illegible] regards grinding allowances [illegible] by high [illegible]. The importance of automating Soviet grinders [illegible] is stressed since most [illegible] still operate with hand-feed. There are [illegible] figures and [illegible] references: [illegible] Soviet-bloc and 2 non-Soviet bloc. The English-language references [illegible] and Motion Study", [illegible], and the catalogue of the [illegible] Co.

Card 2/2

PAMFILOV, A.V.; MUSHIY, R.Ya.; MAZURKEVICH, Ya.S.

Photocatalytic activity of zinc oxide. Ukr.khim.zhur. 24 no.5:599-601 '58. (MIRA 12:1)

1. Chernovitskiy universitet, laboratoriya fizicheskoy khimii.
(Zinc oxide) (Catalysts)